BPW · THE QUALITY FACTOR

ECO Tronic EBS. Trailer Analyser
Operating instructions

Version 1.1
04.001.21.37.5

1 Introduction / 2 Minimum requirements

Contents

		Page
1	Introduction	2
2	Minimum requirements	2
3	Abbreviations	3
4	Installation	4
	4.1 Hardware	
	4.2 Software	
	4.3 Installation options	
5	Start screen - Description	6
6	Main menu - Overview	8
7	Main menu - Snapshots	9
8	Main menu - Histogram	12
9	Histogram - Options	14
10	Main menu - Trip Log	17
11	Trip Log - Options	18
12	Main menu - User information	23

1 Introduction

With the Trailer Analyser you can read analysis data stored in the ECO Tronic EBS ECU to a PC and evaluate this data.

A diagnostic adapter (PC dongle) enables data transfer between the PC and the ECO Tronic EBS ECU. The connection to the diagnostic adapter is by means of a USB cable connected to the USB terminal of the computer and an additional cable connected to the diagnostic terminal of the EBS ECU.

The vehicle data is stored in the ECO Tronic EBS ECU. It remains stored even when the power to the EBS system is switched off.

Note:

- The Trailer Analyser diagnostic adapter differs from the diagnostic adapter used with the Trailer Manager and also serves as a safety dongle for the programme. It is therefore not possible to operate the Trailer Analyser with the Trailer Manager diagnostic adapter or other adapters available in the market (USB adapters).
- The Trailer Analyser can only be opened and used with the diagnostic adapter connected.

2 Minimum requirements

The minimum requirements for the PC or Laptop for operating the Trailer Analyser are as follows:

- Processor - minimum 486

  RAM - 64 MB

  Hard disc - 100 MB

  Monitor - minimum 1024 x 768 VGA

  USB connection - for connecting the diagnostic cable

- MS Windows NT
  MS Windows 2000
  MS Windows XP
  MS Windows Vista : Installation only with administrator rights
  MS Windows 7 : Installation only with administrator rights

3 Abbreviations

Abbreviations	Explanation	Description
2S/2M	2 **S**ensors / 2 **M**odulators	ABS system with 2 rotational speed sensors and 2 modulators
ABS	**A**nti-Lock **B**raking **S**ystem	Prevents the locking of braked wheels to maintain lateral grip
ADM	**A**ssembly **D**ata **M**anagement	Software function for storing all important vehicle data
ADR	**A**ccord européen relatif au transport international des marchandises **D**angereuses par **R**oute	European agreement on international transport of dangerous goods by road
ASC	**A**daptive **S**urface **C**ontrol	ABS control that dynamically adapts to road conditions
AUX	**AUX**iliary	Additional input / output for sensors or actuators / valves
BPM	**B**rake **P**erformance **M**onitoring	Software function for monitoring brake performance
CAN	**C**ontroller **A**rea **N**etwork	Data bus system, used for controller communication in vehicles, among others
COLAS®+	Lift and lower valve	Valve for lifting and lowering the vehicle body in the case of airsprung vehicles
DCV	**D**ouble **C**heck **V**alve	Anti-compounding valve to prevent simultaneous application of service brakes and emergency brakes
DTC	**D**iagnostic **T**rouble **C**odes	Brake system error / warning codes for diagnosis and repair
EBS	**E**lectronic **B**raking **S**ystem	Electro-pneumatic brake system with CAN communication between the truck and the trailer
ECE R13	**E**conomic **C**omission for **E**urope **R**egulation No. 13	European regulation No. 13 - Brake systems
ECU	**E**lectronic **C**ontrol **U**nit	Electronic controller
EEPROM	**E**lectrically **E**rasable **P**rogrammable **R**ead **O**nly **M**emory	
ELS (LSV)	**E**lectronic **L**oad **S**ensing **L**oad **S**ensing **V**alve	Function for automatically adapting the braking force to the load of the vehicle
EOLT	**E**nd **O**f **L**ine **T**est	End of line system check to ensure correct system installation
EPRV	**E**lectro **P**neumatic **R**elay **V**alve	Electro pneumatically piloted relay valve of the EBS
GPI	**G**eneral **P**urpose **I**nput	AUX option
GPO	**G**eneral **P**urpose **O**utput	AUX option
ILAS®-E	**I**ntegrated **L**ift **A**xle **S**teering	EBS controlled lift axle valve
ISO 1185		Standardised interface between truck and trailer for lighting control
ISO 11992		CAN bus communication standard between truck and trailer for brake control
ISO 7638		Standardised interface between truck and trailer supplying ABS/EBS systems with power, transferring a signal for a warning device and, if fitted, enabling CAN communication as standardised in ISO 11992
LWS	**L**ining **W**ear **S**ystem	Brake pad wear sensing
PPV	**P**ressure **P**rotection **V**alve	Pressure protection valve that separates the brake and air suspension circuits
PTC	**P**ush **T**o **C**onnect	Pneumatic connectors to ease installation
QRV	**Q**uick **R**elease **V**alve	
REV	**R**elay **E**mergency **V**alve	Relay valve with emergency brake function
RCM	**R**oad **C**ondition **M**onitoring	Software function for recording and evaluating road profiles
RtR	**R**eset **t**o **R**ide Height	Automatic return to ride height
SAUX	**S**uper **AUX**	Installation-optimized possibility for three digital inputs
TA	**T**raction **A**ssist	Starting traction control
TrCM	**T**railer **C**ontrol **M**odule	Parking and manoeuvring valve with emergency brake function (and integrated pressure protection)
TRS	**T**railer **R**oll **S**tability	Function that reduces the risk of the trailer rolling over

4 Installation

The software must be installed before connecting the diagnostic adapter.

4.1 Hardware

To connect the ECO Tronic EBS to a standard PC the corresponding diagnostic kit (BPW no. 99.00.000.9.65), containing the diagnostic adapter, the required connecting cables and a USB stick with the Trailer Analyser software, is required.

If you already have the ECO Tronic EBS diagnostic kit with the BPW number 99.00.000.9.64 you only need the Trailer Analyser accessory kit no. 99.00.000.9.66 with the diagnostic adapter (PC dongle) for use only with the Trailer Analyser. This Trailer Analyser diagnostic adapter is the prerequisite for using the software and constitutes the access authorisation. The software cannot be opened until the diagnostic adapter is connected.

The diagnostic adapter has a multi-functional LED which shows the proper function of the device as follows:

Yellow: The diagnostic adapter is connected to the PC and supplied with power from the USB connection (PC connection only).
Red: The ECO Tronic EBS ECU is supplied with 24 V power and connected to the diagnostic adapter.
Green: The data are being transferred.

Note: During connection the red and green LEDs light up alternately.

4.2 Software

Note: The software will run only with the connected diagnostic adapter.

Open the „msi file“ (installation file) for the Trailer Analyser and follow the instructions on the screen to install the programme.

Note: In order to load the data via the Trailer Analyser from the ECO Tronic EBS, there **must** be a connection between the PC and the EBS. Furthermore, the EBS must be supplied with power via ISO 7638.

The files are installed in the following PC folder:
C:\Program Files\BPW\Trailer Analyser

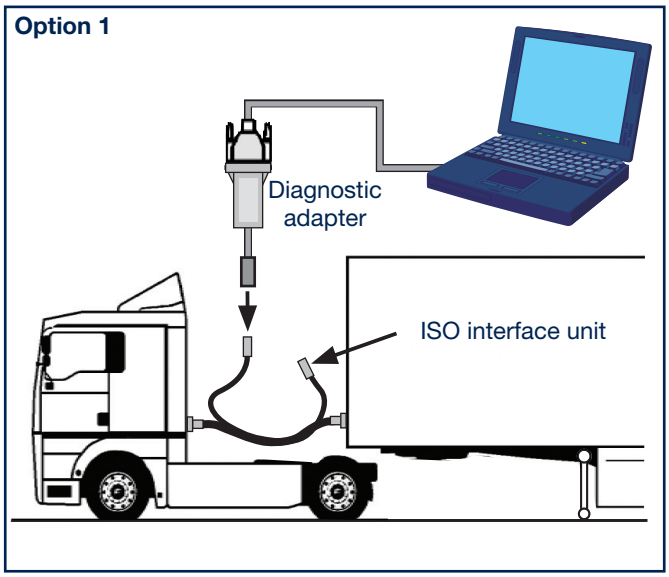
This concludes the installation.
Keep the installation software in a safe place in case you need to install the software again.

To obtain the latest version of the Trailer Analyser, download this in the required language from the BPW homepage under www.bpw.de

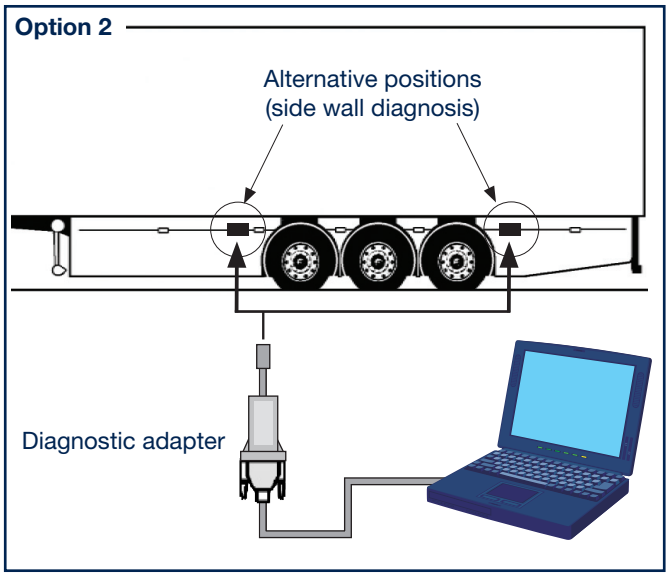
ECO Tronic EBS diagnostic kit
(BPW no. 99.00.000.9.65)

4.3 Installation options

Installation option 1
Connect the ECU via the ISO 7638 7-pin interface connection, in which pins 6 and 7 serve as a CAN data bus. The required cables are supplied with the ECO Tronic EBS diagnostic kit for the Trailer Analyser.

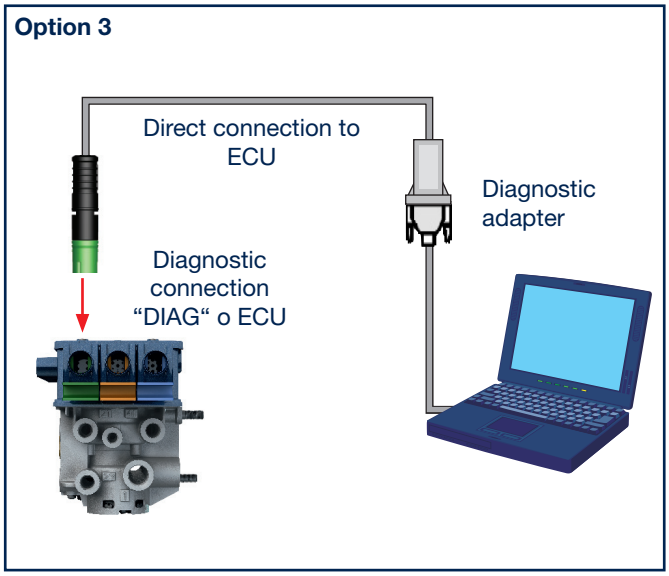


Installation option 2
Connect the ECU via the terminal on the side of the vehicle (side wall diagnosis). The cable from the side wall diagnosis interface to the adapter is supplied in the above diagnostic kit.



Installation option 3
Connect the ECU via a cable (not included in the above diagnostic kit) from the USB adapter directly to the DIAG interface of the Modulator. You can then directly access the ECU.

Supply 24 V power to the EBS system from an external source. Lower voltages can cause connection problems. The LED on the adapter must light up in red. If this is not the case, check the connections and try again.



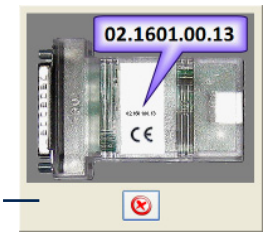
5 Start screen - Description

Starting the programme

Start the Trailer Analyser programme with the icon on the desktop. The start screen is then displayed.

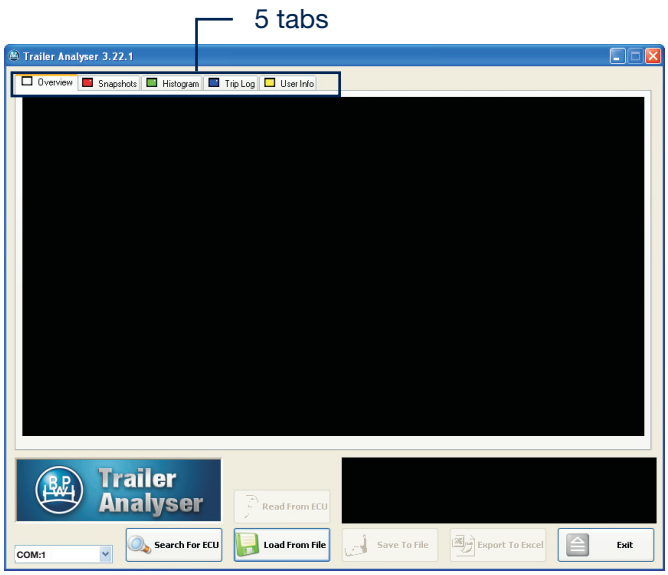
Note: The programme requires a connected diagnostic adapter. If the adapter is not connected, a diagnostic adapter fault message is displayed.

Trailer Analyser



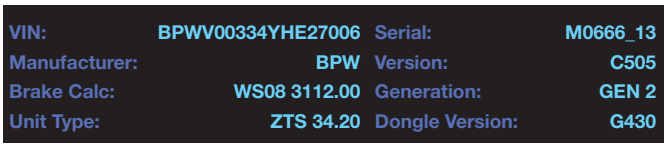
Elements of the Start screen

Five tabs are located at the top of the monitor for the Trailer Analyser programme:
Overview, Snapshots, Histogram, Trip Log and User Info.



Vehicle data window

The vehicle identification information is displayed in the vehicle data window.



VIN:	Vehicle identification number
Manufacturer:	Name of trailer manufacturer
Brake Calc:	Brake calculation number
Unit Type:	User defined (manufacturer)
Serial:	The serial number of the ECU
Version:	Software version in the ECU
Generation:	ECU type
Dongle version:	Diagnostic adapter version

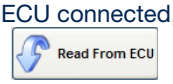
5 Start screen - Description

The following soft keys are available with every screen:

Search for ECU:
If an EBS ECU connection exists via the diagnostic adapter, click on:

The Trailer Analyser programme then automatically searches for an existing ECU connection.

Read from ECU:
To read out data from the ECU connected, click on:



This button is only active when an ECU has been found. (“Search For ECU“ successful).

Note: If the diagnostic adapter is not connected, a fault message is displayed.

Load from File:
If ECU data are stored in a file, you can display and analyse these by clicking on

and selecting a stored file.

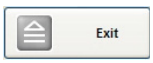
Save to File:
To store the data from the connected ECU, in a file, click on:

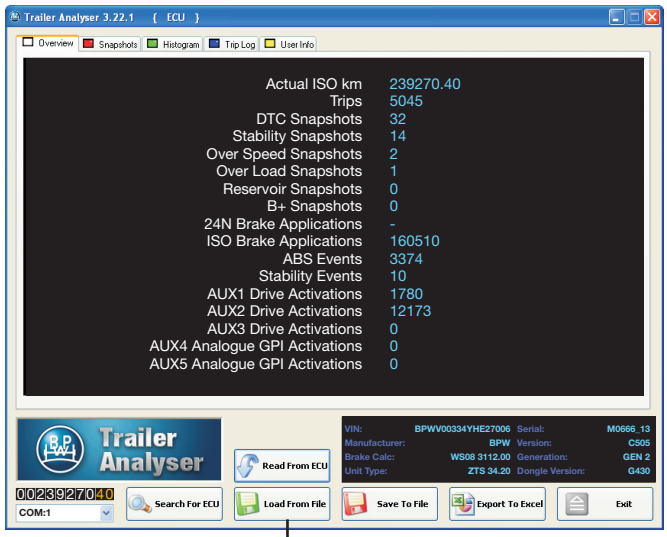
In general, data previously stored from the ECU can be viewed at any time.

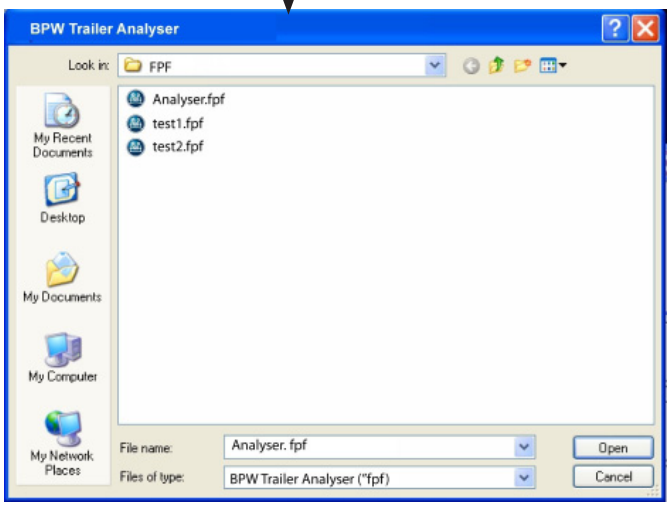
Export to Excel:

The “Export To Excel“ button allows you to save the data shown in the Trailer Analyser as a .csv file and to process it further in Excel.

Exit Trailer Analyser:
To exit the Trailer Analyser programme, click on:



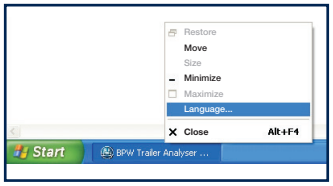


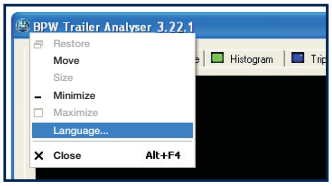


Selecting the language

The BPW Trailer Analyser bar is located at the lower edge of the monitor screen. Clicking with the right mouse button on this bar or on the BPW logo in the title bar displays a menu in which you can select the „Language“ option. The following languages are available: Czech, Dutch, English, French, German, Hungarian, Italian, Polish, Russian, Spanish, Swedish, Turkish.

A screen with the flags for the languages available with the Trailer Analyser is displayed. Clicking on the required flag changes the programme to the selected language. With Windows Vista and Windows 7, the language setting is stored only if the user has administrative authorisation rights.





6 Main menu - Overview

Overview

The first tab displays the following information after loading a data record:

Actual ISO km:

Shows the travel distance, which the trailer has covered with a connected ISO 7638 supply. Also the total distance traveled is calculated during which the trailer was attached to ISO 7638 and 24N brake lights power supply or only to 24N emergency power supply. This is only an approximate value, as the distance cannot be continuously recorded without ISO 7638 power supply.

Trips:

A trip describes the transports in which the vehicle reaches at least 10 km/h and covers a distance of at least 1 km thus excluding travel over very short distances.

Number of DTC Snapshots*

Number of Stability Snapshots*

Number of Over Speed Snapshots*

Number of Over Load Snapshots*

Number of Reservoir Snapshots*

Number of B+ Snapshots*

- recorded when the voltage limit set is exceeded (default setting 32 V)

Total number of 24N Brake Applications counted

Total number of ISO Brake Regulations counted

Total number of ABS Events counted

Total number of Stability Events counted

Total number of AUX1 Drive Activations counted

Total number of AUX2 Drive Activations counted

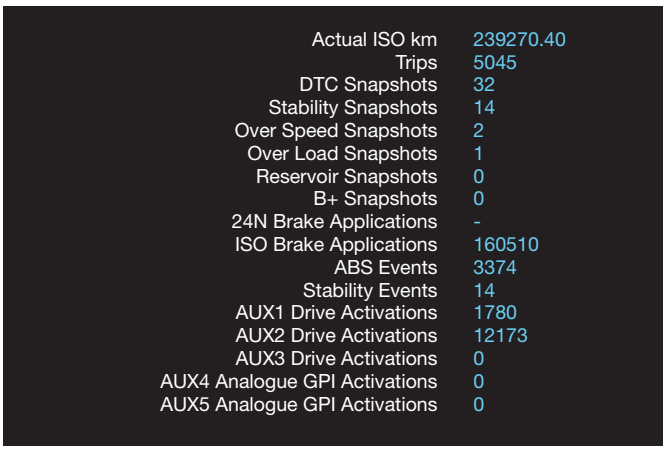
Total number of AUX3 Drive Activations counted

Total number of AUX4 Analogue GPI Activations counted

Total number of AUX5 Analogue GPI Activations counted

Displays the number of activations of the general purpose inputs (GPI) when these exceed certain values defined in the Trailer Manager

* See the following page for the definition of snapshot.



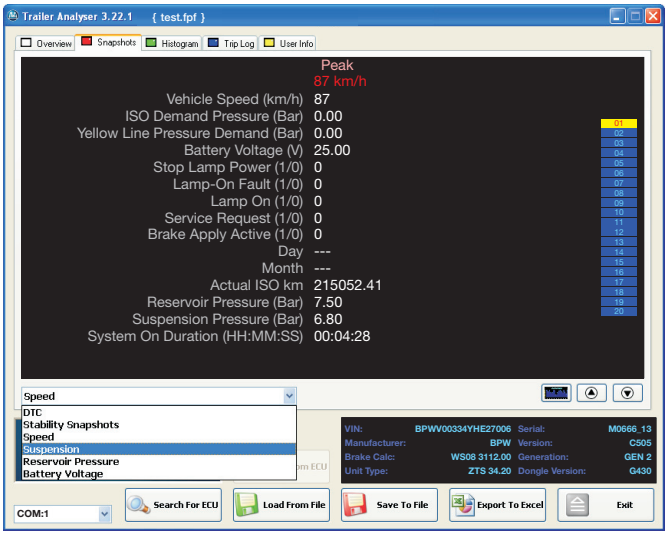
7 Main menu - Snapshots

Snapshots menu

With the red „Snapshots“ tab at the top of the monitor screen you can display the snapshots.

Definition: Snapshot is understood to mean the recording of data at a particular moment in time. The recording is triggered by threshold values previously set in the Trailer Analyser or the occurring faults. The default values of these thresholds are described on the following page.

The snapshots only show the most current events.



Selecting the snapshot type

In the menu in the lower third of the monitor screen you can select the snapshot type that you want to display. The following options are available:

DTC:	Diagnostic Trouble Codes
Stability snapshots:	Braking events caused by the Trailer Roll Stability (TRS)
Speed:	A snapshot is recorded (when the set speed limit is exceeded)
Suspension:	A snapshot is recorded (when the set load limit is exceeded)
Reservoir pressure:	Excessive pressure events are displayed
Battery voltage:	Here over-voltage events are displayed

Following selection of the required snapshot type, at the right side of the monitor screen with a list of the available snapshots is displayed. Selected snapshots are highlighted by flashing as well as a coloured background. The buttons allow navigation through the individual snapshots. The snapshot selected from this list is displayed in detail on the screen.

A maximum of 32 DTC snapshots and Stability 32 snapshots can be stored and a maximum of 20 for the other types. The most recent snapshot is stored under the number 01. After exceeding the maximum number of snapshots data is overwritten, beginning with the oldest snapshot.

7 Main menu - Snapshots

Main screen

Each snapshot is comprised of the following data elements:

Vehicle speed (km/h)
The speed of the vehicle at the time of the recording is indicated.

ISO Demand Pressure (bar)
The control pressure is transmitted via CAN indicated in bar.

Yellow Line Pressure Demand (bar)
The control pressure of the yellow line is indicated in bar.

Battery Voltage (V)
The voltage of the battery is indicated.

Stop Lamp Power (1/0)
When a 1 is indicated the EBS was not supplied with power via ISO 7368 but via the emergency power supply (ISO 1185 / 24N).

Lamp-On Fault (1/0)
The recording shows whether the warning light was activated at the time of the snapshot. If the warning light was activated a 1 is displayed. The warning light on fault is activated as soon as an EBS fault occurs.

Lamp On (1/0)
This recording shows whether the warning light was activated at the time of the snapshot. The warning light is activated e.g. in the event of insufficient supply pressure or insufficient power (see also page 22).

Service Request (1/0)
The recording shows whether the service warning light was activated at the time of the snapshot. The activation of the warning lights can be allocated in the Trailer Manager to certain AUX inputs and outputs. This service warning light is activated if malfunctions of the AUX inputs or outputs occur or when the service intervals are exceeded (can be set in the Trailer Monitor).

Brake Apply Active (1/0)
This recording shows whether a brake actuation solenoid was active at the time of the snapshot. This indicates whether the electro-pneumatic relay valves (EPRV) of the EBS were activated and the braking pressure therefore applied.

Day
Month
For an exact analysis, the day and month of the event are indicated. These are available only if a Trailer Monitor (with battery) was connected during the recording.

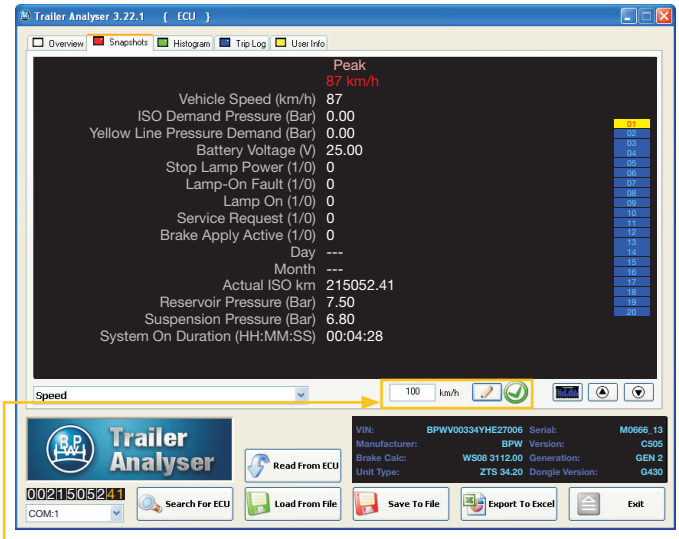
Actual ISO km
This indicates the kilometre reading at the time of the recording.

Reservoir Pressure (bar)
This indicates the air pressure in the reservoir tank.

Suspension Pressure (bar)
This indicates the bellows pressure in the air bags.

System On Duration
This indicates how long the system was supplied with power (HH:MM:SS).

Remark:
1 = yes (activated)
0 = no (not activated)



The speed, suspension, reservoir pressure and battery voltage snapshots are recorded when a certain limit value is exceeded.

Default values:	**Speed:**	**100 km/h**
	Suspension:	**130 %**
	Reservoir Pressure:	**9.75 bar**
	Battery Voltage:	**32 V**

These values can be changed or adapted via the Trailer Analyser with an ECU connected and supplied with power.

To adapt a value, enter the desired new value in the entry field and click on the pencil symbol .

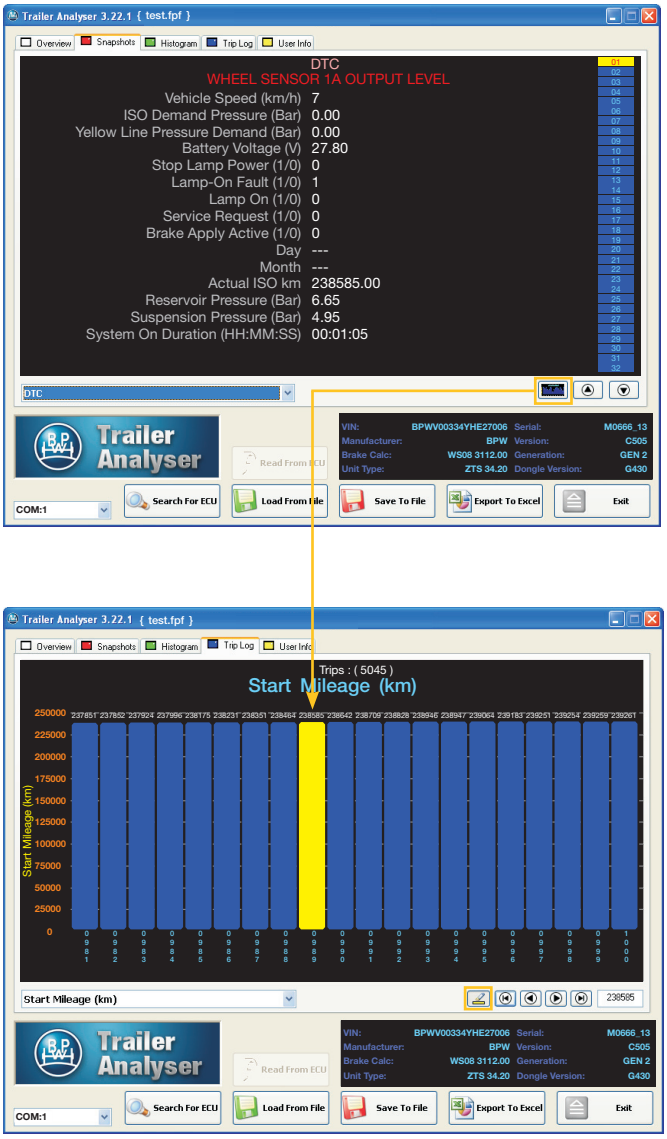
Following successful transmission to the ECU, a green check mark is displayed .

Otherwise, a red symbol is displayed .

7 Main menu - Snapshots

When you have selected a snapshot, clicking the „Hyperlink“ button switches to the trip in which the snapshot occured.

This trip is featured in the trip sheet records in color. The mark may be reversed by the button . Account must be taken, however, that only the last 1000 trips are stored (see Trip Log chapter).



8 Main menu - Histogram

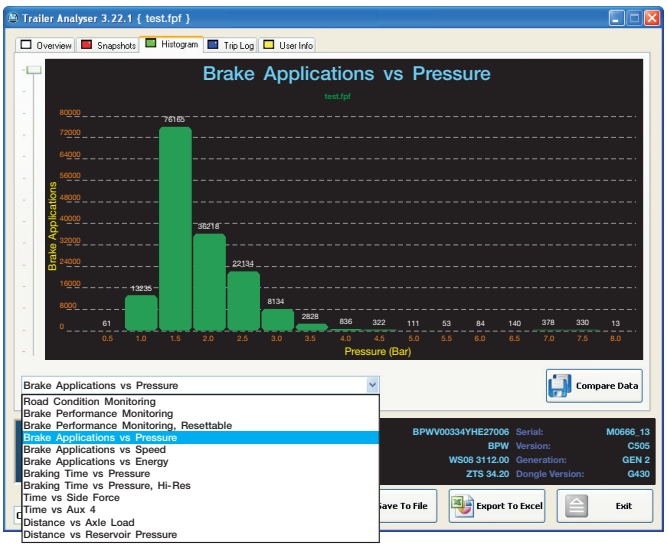
Histogram menu

With the green „Histogram“ tab at the top of the monitor screen you can display the histograms.

The histograms display important data collected over the life of the EBS. With the exception of „Brake Performance Monitoring, Resettable“, they cannot be erased.

In the menu display in the middle of the screen, you can select which histogram type you want to display. The following options are available:

- Road Condition Monitoring
- Brake Performance Monitoring
- Brake Performance Monitoring, Resettable
- **Brake Applications vs Pressure**
- Brake Applications vs Speed
- Brake Applications vs Energy
- Braking Time vs Pressure
- Braking Time vs Pressure, Hi-Res
- Time vs Side Force
- Time vs Aux 4
- Distance vs Axle Load
- Distance vs Reservoir Pressure



Main screen

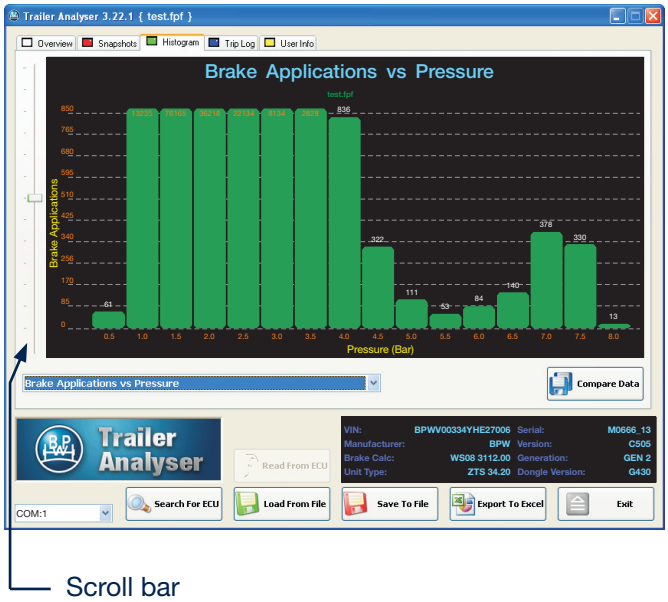
The histograms divide the collected data into classes, each shown by a bar. The values beneath the bar show the appropriate top class limit. The last bar shows all the values greater than the value displayed beneath the bar.

By using the scrollbar on the left-hand side, you can scale the histogram down, step by step, to the next lowest bar. In this way, you can view lower values, which are only visible as a thin bar in the chart, at a higher resolution.

The right-hand chart shows the same values as in the above chart. However, the chart was scaled up to the seventh-highest bar by dragging the scroll bar.

This means that this bar is shown perfectly in the chart. The bars around the 7.5 bar mark, which can hardly be told apart in the top chart, are now easily visible and can be compared graphically.

A red value in the bar means that, due to scaling, the bar can no longer be shown in full.

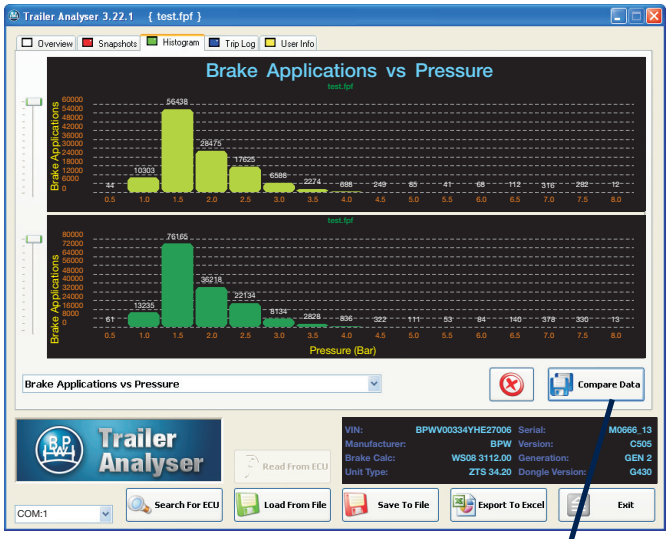


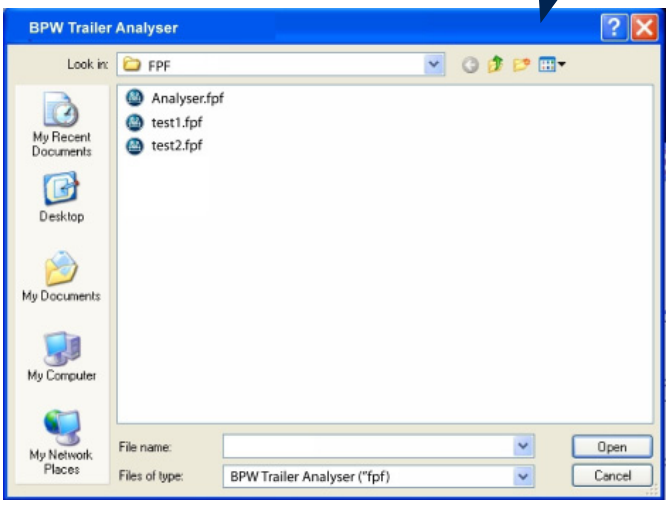
It is also possible to compare the data with another, previously stored fpf file (e.g. from another vehicle). To load the data from a second file to the screen, click on:

and select the required file in the window which opens.

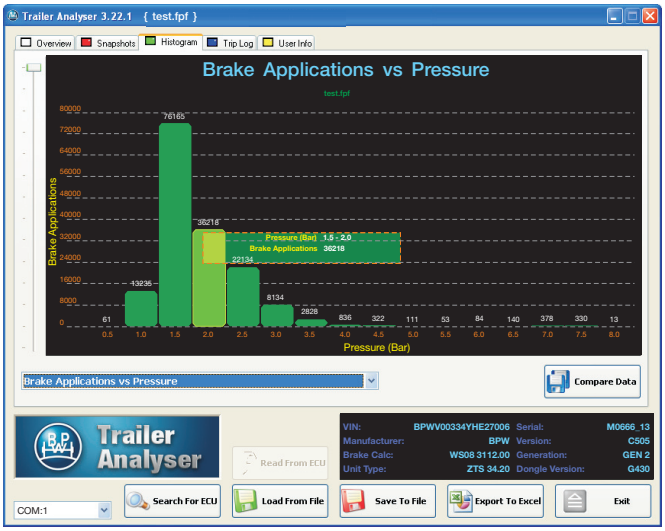
When the file has been opened, two different histograms will appear on the screen, one above the other.

With the soft key you can remove the additional histogram from the screen.





Clicking the right mouse button once allows you to highlight the individual bars of the chart. In addition, the corresponding x and y values (here, for example controlled brake pressure (top and bottom class limits) and the number of brake applications at this brake pressure) are shown in an information box.



9 Histogram - Options

Histograms

Diagram no. 1-1: Road Condition Monitoring / On-Road*

This diagram shows the number of registered rough road kilometres. Driving over rough roads is counted in terms of „rough road counts“. In the diagram, all kilometres driven are divided into classes according to the number of „rough road counts“.

This evaluation indicates e.g. that for 92781 kilometres travelled, 0-5 rough road counts/km were registered. For 20713 kilometres, 5-10 rough road counts/km were registered. A low number of rough road counts/km indicates that the vehicle was operating on-road.

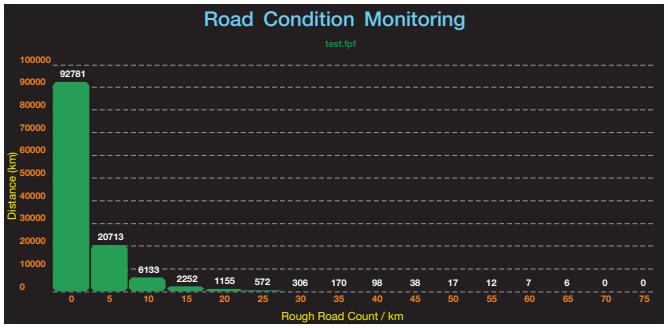
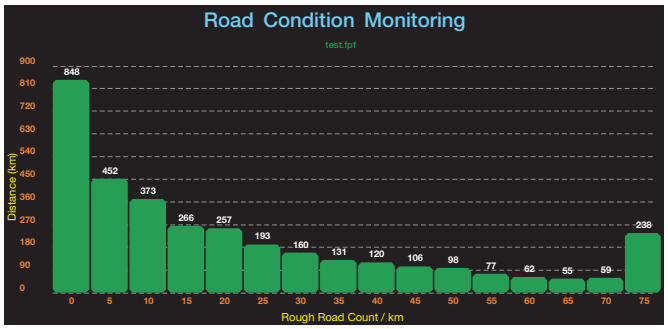


Diagram no. 1-2: Road Condition Monitoring / Off-Road*

This graph is another example of possible data in a Road Condition Monitoring diagram.

This evaluation shows that rough road counts were repeatedly registered for a relatively high number of the kilometres travelled. This indicates increased off-road operation.

For example, for 160 km of the distance travelled the rough road count was 30 - 35.



* Road Condition Monitoring algorithm is not implemented in some regional specific versions of BPW ECO Tronic EBS, thus rendering of RCM data within histograms and trip details is not possible.

Diagram no. 2-1: Brake Performance Monitoring

The translucent green background represents the range of ECE brake band. The number of brake actuations and their position relative to the ECE brake performance are displayed.

In this case, most of the braking lies within the ECE band. It is therefore not necessary to make brake adjustments.

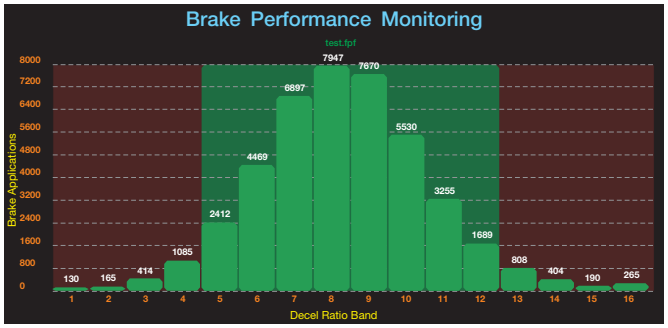


Diagram no. 2-2: Brake Performance Monitoring

In this case most of the braking lies outside the ECE band.

The brake settings and setup should be checked.

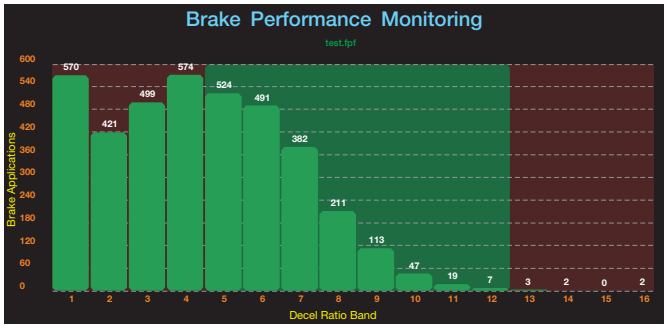
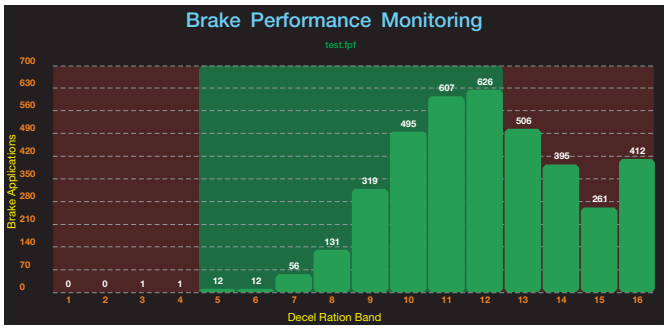


Diagram no. 2-3: Brake Performance Monitoring

In this case part of the braking lies outside the ECE band. The area with a green background shows the region of the ECE brake band.

The brake settings and setup should be checked.



9 Histogram - Options

Diagram no. 3: Brake Performance Monitoring

This evaluation is similar to diagram no. 2, however with the possibility to reset and store new data. This tool is used e.g. when changing tractor units to evaluate new data. Resetting this function defines a new start point for recording new data. Already recorded data is lost with this function and available only via the usual Brake Performance Monitoring function.

The soft key for resetting the diagram is displayed only with the EBS connected and supplied with power.

Note: Diagram no. 2 cannot be erased and displays the data over the entire life of the EBS.

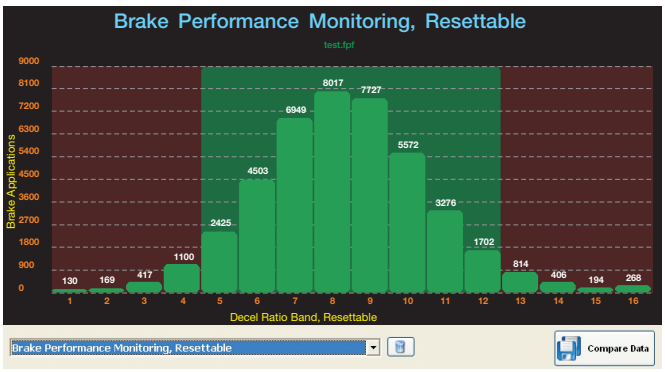


Diagram no. 4: Brake Applications vs Pressure

With each application, the brake control pressure provided via ISO 7368 or the yellow line is recorded. The diagram displays the number of brake actuations in each of the 0.5 bar pressure intervals from 0 to 8 bar. Brake actuations with a pressure of more than 8 bar are also stored in the last class (8 bar).

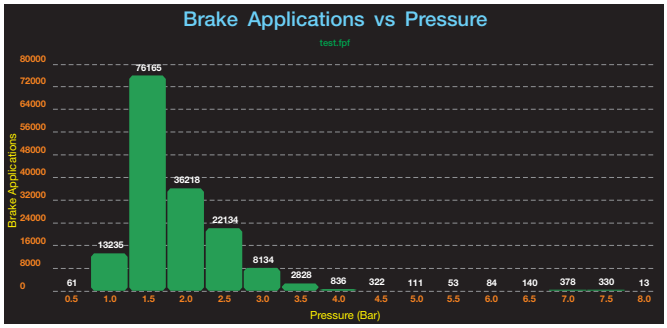


Diagram no. 5: Brake Applications vs Speed

With each application, the speed at the beginning of braking is recorded. The diagram displays the number of brake actuations at different start speeds. Recording takes place in 10 km/h steps from 0 to 160 km/h.

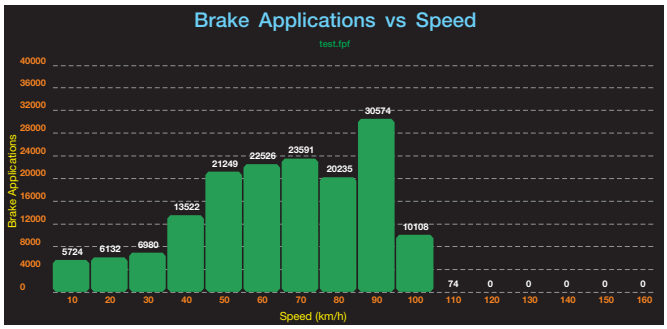


Diagram no. 6: Brake Actuations vs Energy

The braking energy is estimated on the basis of the chassis load and the deceleration during braking.

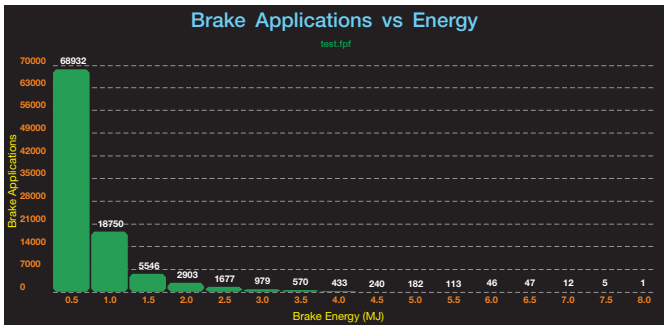
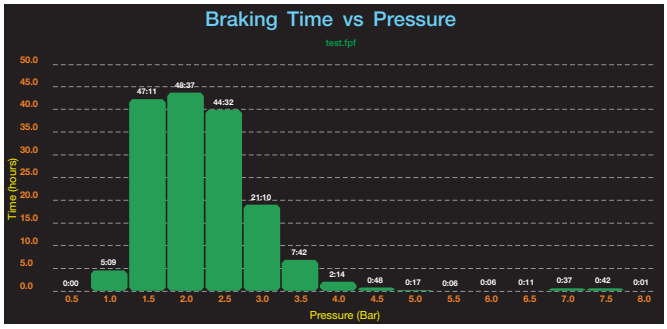


Diagram no. 7: Braking Time vs Braking Pressure

The duration of each application is measured in order to update the total braking time for each control pressure. The diagram displays the cumulative braking time in 0.5 bar steps from 0 to 8 bar.



9 Histogram - Options

Diagram no. 8: Braking Time vs Pressure (high resolution)
The diagram displays the total braking time for different pressures over the range from 0 to 3.4 bar with a higher resolution over a smaller range than for diagram 7.

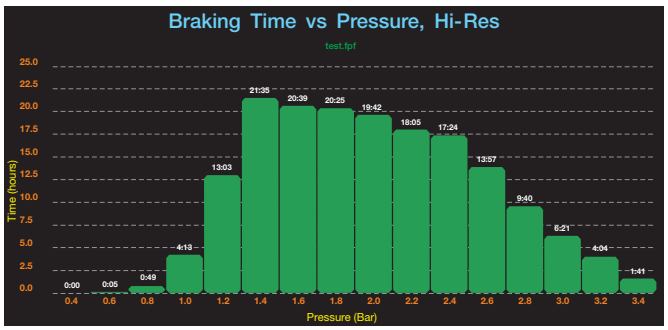


Diagram no. 9: Time vs Side Force
The side force of the wheels is calculated on the basis of the chassis load and the lateral acceleration (if available). For this purpose the data taken from the lateral acceleration sensor and the bellows pressure is evaluated.

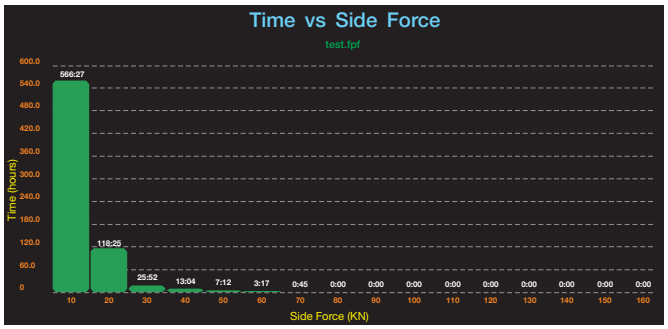


Diagram no. 10: Time vs AUX 4
This diagram records the voltage at the input AUX 4 as a function of time. The possible configurations at AUX 4 are:
- Lining Wear Sensor
- General Purpose Input (GPI)
- Control Line Sensor
- Soft Docking
- Mechanical Height Sensor (leaf spring position sensor)

In this example, AUX 4 was parameterised as a „General Purpose Input“ and a simple switch (with states „on“ (5 V) / „off“ (0 V)) connected.

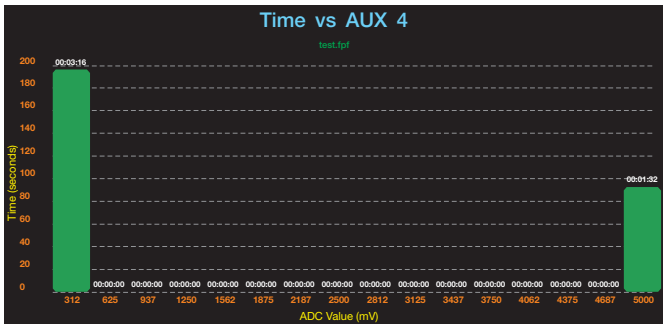


Diagram no. 11: Distance vs Axle Load
This diagram displays the loading in relation to distance. After each kilometre travelled the bellows pressure is monitored. The axle load is calculated from the bellows pressure, using the ELS (Electronic Load Sensing) brake parameters stored in the ECU by the Trailer Manager. The result is a „load profile“, as displayed in the diagram.

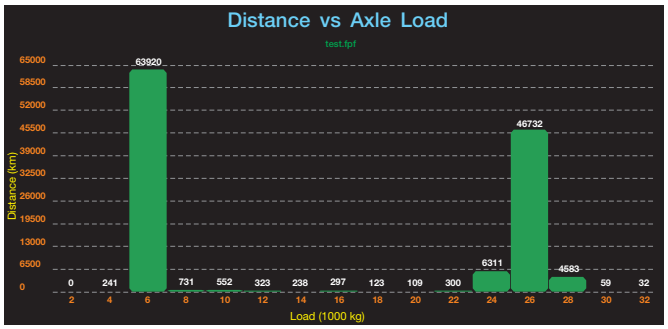
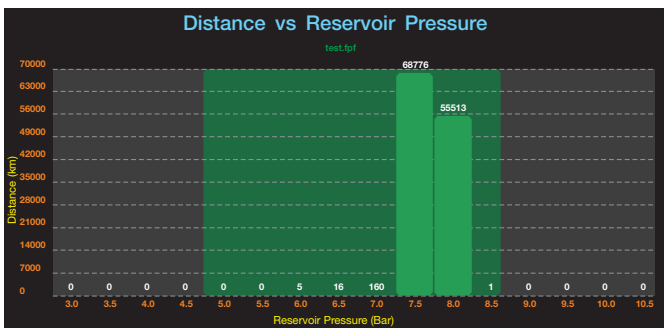


Diagram no. 12: Distance vs Reservoir Pressure
This diagram displays changes in the reservoir pressure over the course of travel. The reservoir pressure is recorded after each kilometre travelled in 0.5 bar steps.

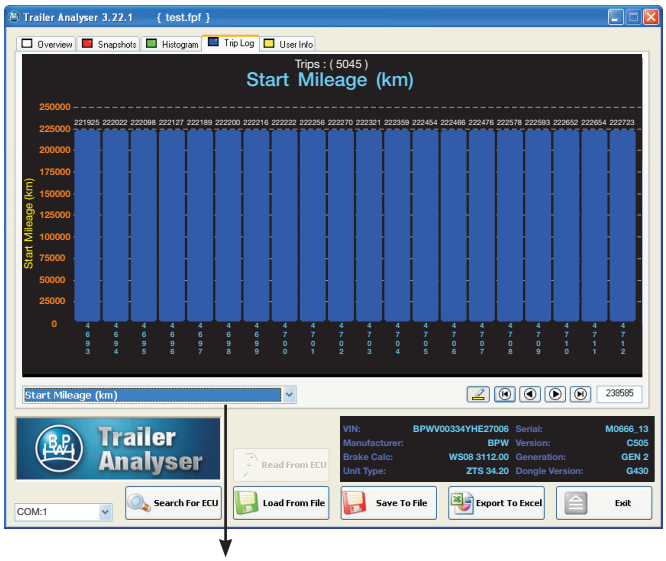


Trip Logs

With the blue „Trip Log“ tab at the top of the monitor screen you can display the transport protocols.

Trips: The transport runs in which the vehicle reaches at least 10 km/h and covers a distance of at least 1 km, excluding travel over very short distances.

A maximum of 1000 trips is stored. After exceeding the maximum number of trips, the older ones are overwritten. Therefore numbers greater than 1000 can be displayed at the upper edge of the screen and in the Trip Info Box.
Irrespective of this, the first 1000 trips are always numbered from 0001 to a maximum of 1000 at the lower edge of the screen.



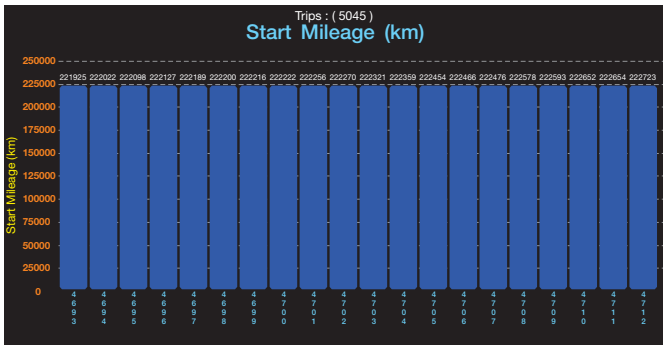
Selection menu

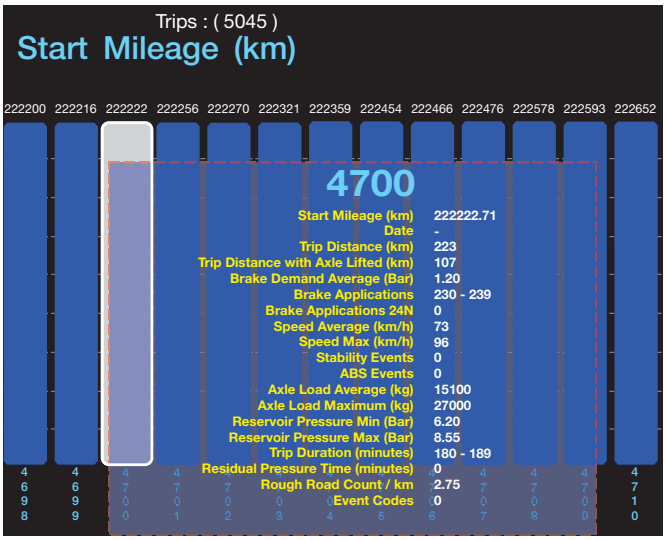
Main screen

In the menu in the lower section of the monitor screen you can select the trip variable you want to display.

The following options are available:

- Start Mileage (km)
- Date
- Trip Distance (km)
- Trip Distance with Axle Lifted (km)
- Brake Demand Average (Bar)
- Brake Applications
- Brake Applications 24N
- Speed Average (km/h)
- Speed Max (km/h)
- Stability Events
- ABS Events
- Axle Load Average (kg)
- Axle Load Maximum (kg)
- Reservoir Pressure Min (Bar)
- Reservoir Pressure Max (Bar)
- Trip Duration (minutes)
- Lift Axle - Number of Operations (from Version C505)
- Steer Axle - Number of Operations (from Version C505)
- Warning Lamp Ignored (minutes) (from Version C505)
- Residual Pressure Time (minutes)
- Rough Road Count / km*
- Event Codes




Trips : (5045)
Start Mileage (km)
4700
Start Mileage (km) 222222.71
Date -
Trip Distance (km) 223
Trip Distance with Axle Lifted (km) 107
Brake Demand Average (Bar) 1.20
Brake Applications 230 - 239
Brake Applications 24N 0
Speed Average (km/h) 73
Speed Max (km/h) 96
Stability Events 0
ABS Events 0
Axle Load Average (kg) 15100
Axle Load Maximum (kg) 27000
Reservoir Pressure Min (Bar) 6.20
Reservoir Pressure Max (Bar) 8.55
Trip Duration (minutes) 180 - 189
Residual Pressure Time (minutes) 0
Rough Road Count / km 2.75
Event Codes 0

Clicking and holding down the left mouse button displays the cursor as a hand. With the hand cursor you can drag the screen display to the left or right in order to see all the stored data.

Clicking with the right mouse button on a trip bar displays a trip summary (Trip Info Box). Clicking again removes this display. The selected bar is given a coloured background.

Note: It is possible that not all variables are available on all systems, for example the date only with the Trailer Monitor connected, stability events only with existing stability sensor and lift axle information only when a lift axle is present.

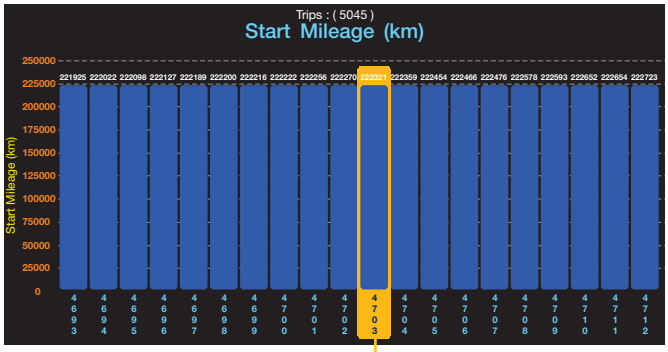
* Road Condition Monitoring algorithm is not implemented in some regional specific versions of BPW ECOTronic EBS, thus rendering of RCM data within histograms and trip details is not possible.

11 Trip Log - Options

Trip Logs - Diagrams

Diagram no. 1: Start Mileage (km)

This diagram displays the kilometre reading at the beginning of a trip. The total number of trips recorded is shown above the diagram title.



Example of kilometre reading at the beginning of trip 4703 with the Trip Info Box (trip summary).

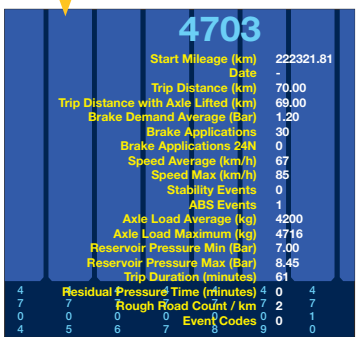

4703
Start Mileage (km) 222321.81
Date -
Trip Distance (km) 70.00
Trip Distance with Axle Lifted (km) 69.00
Brake Demand Average (Bar) 1.20
Brake Applications 30
Brake Applications 24N 0
Speed Average (km/h) 67
Speed Max (km/h) 85
Stability Events 0
ABS Events 1
Axle Load Average (kg) 4200
Axle Load Maximum (kg) 4716
Reservoir Pressure Min (Bar) 7.00
Reservoir Pressure Max (Bar) 8.45
Trip Duration (minutes) 61
Residual Pressure Time (minutes) 0
Rough Road Count / km 2
Event Codes 0

Diagram no. 2: Date

This diagram displays the date of the trip. The date is recorded only with the Trailer Monitor (battery) installed. In this example, no Trailer Monitor was connected for trips 25, 32 and 44.

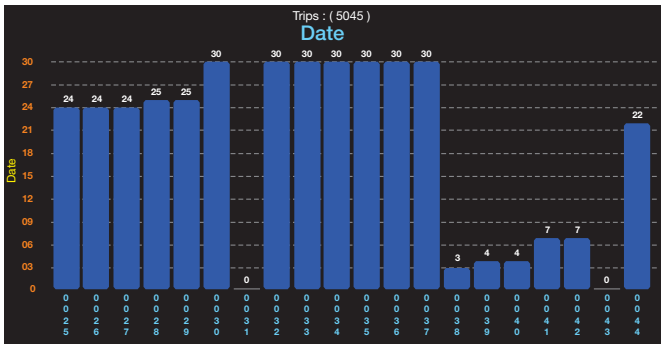


Diagram no. 3: Trip Distance (km)

This diagram displays the trip distance in km for each trip.

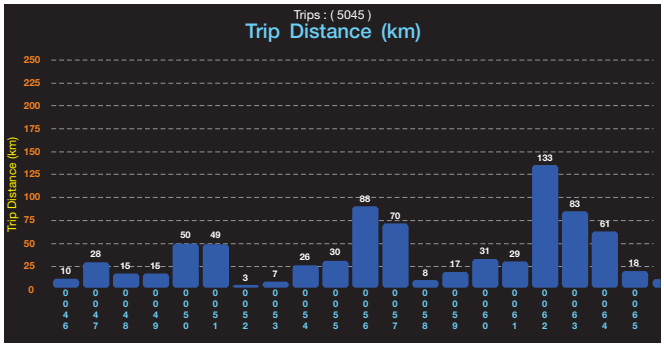


Diagram no. 4: Trip Distance with Axle Lifted (km)

This diagram displays the trip distance with lift axle raised in km for each trip.

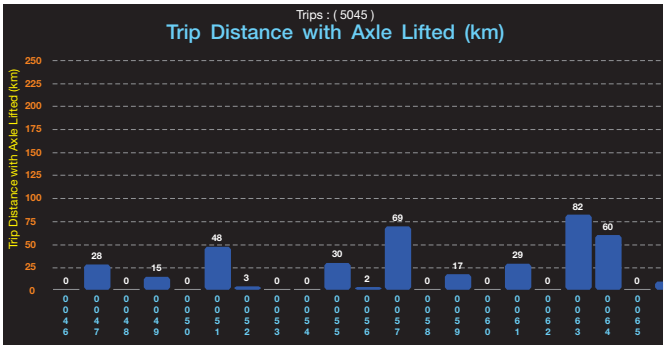


Diagram no. 5: Brake Demand Average (bar)
This diagram displays the mean value of the control pressure transmitted via the ISO 7368 or the yellow line from the tractor vehicle to the trailer.

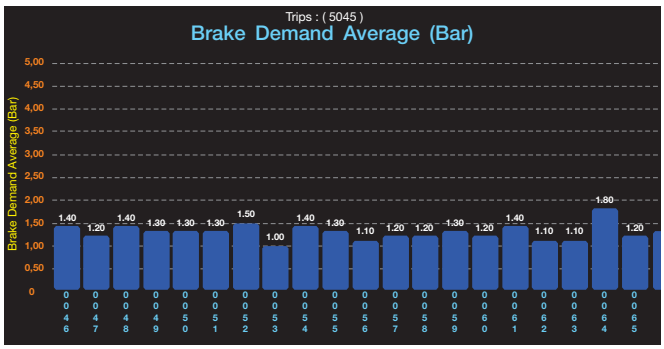


Diagram no. 6: Brake Applications
This diagram displays the number of brake applications per trip. For higher numbers of brake applications a value range is specified. E.g. for trip 0277, 220 - 229 brake applications were recorded.

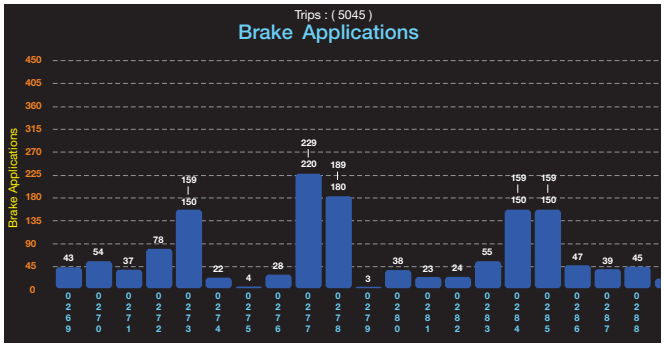


Diagram no. 7: Brake Applications 24N
If the EBS is not supplied with power via ISO 7638, no trips are recorded. When emergency power is available (via ISO 1185), the 24N brake applications are displayed in the next recorded trip when the EBS is again supplied with power via ISO 7638.

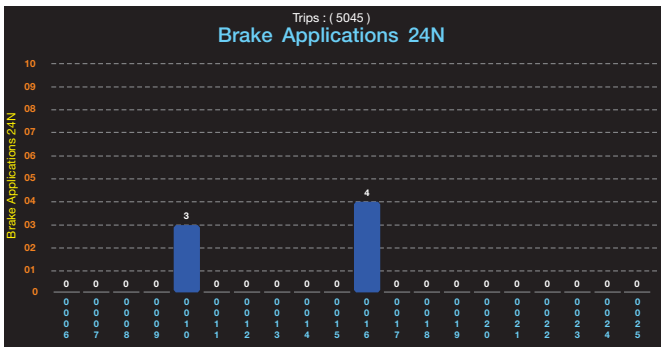


Diagram no. 8: Speed Average (km/h)
This diagram displays the mean speed for each trip.

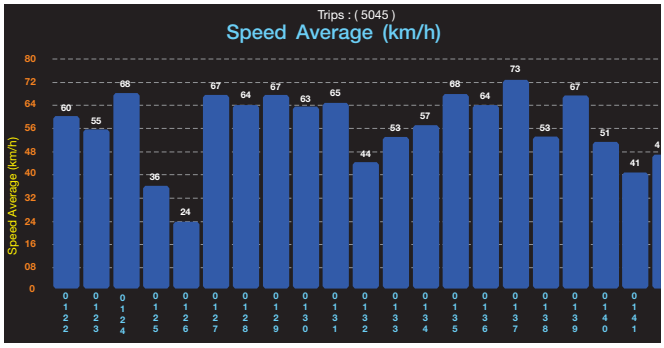
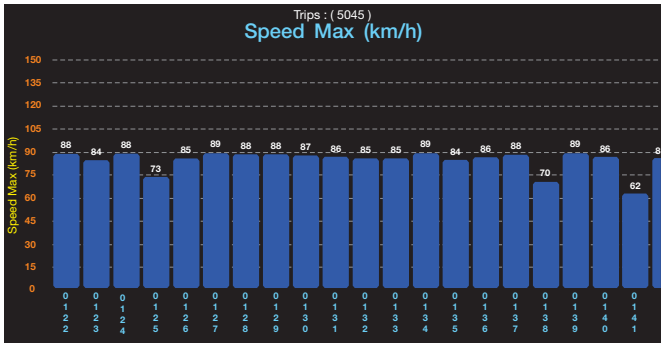


Diagram no. 9: Speed Max (km/h)
This diagram displays the maximum speed for each trip.



11 Trip Log - Options

Diagram no. 10: Stability Events
This diagram displays the number of brake actuations regulated by the EBS stability function for each trip.

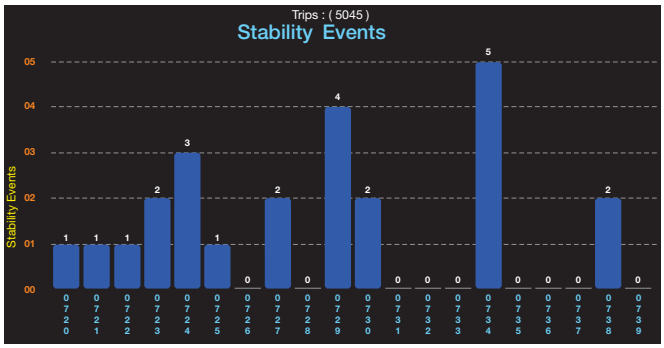


Diagram no. 11: ABS Events
This diagram displays the number of ABS-regulated brake actuations for each trip.

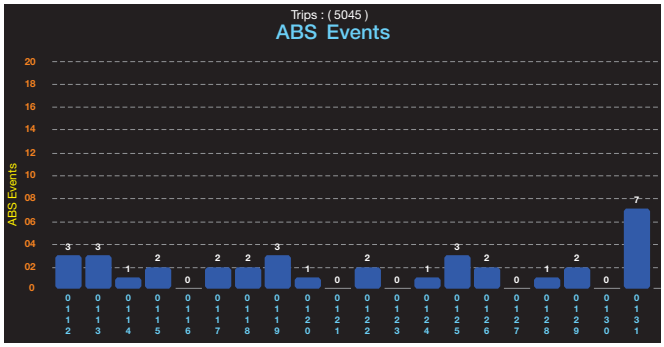


Diagram no. 12: Axle Load Average (kg)
This diagram displays the mean axle load for each trip.

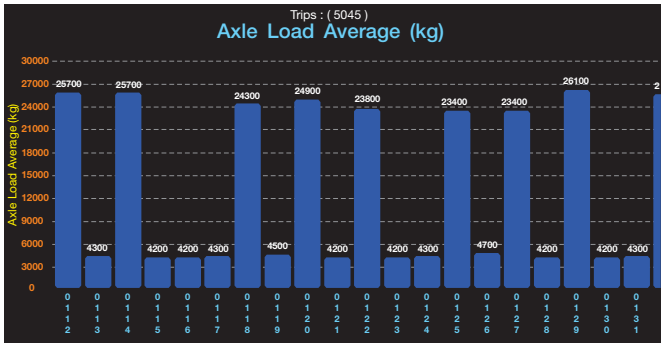


Diagram no. 13: Axle Load Maximum (kg)
This diagram displays the maximum axle load for each trip.

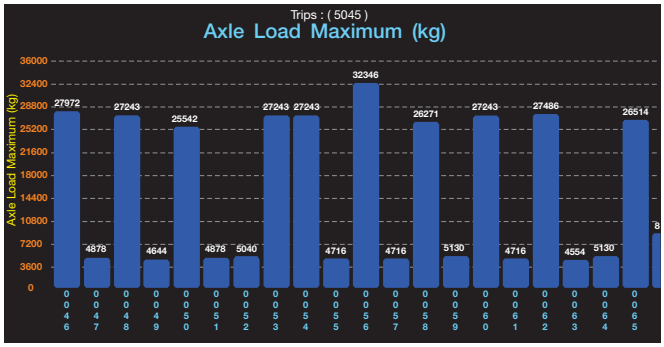


Diagram no. 14: Reservoir Pressure Min (bar)
Displays the minimum air pressure (bar) in the reservoir.

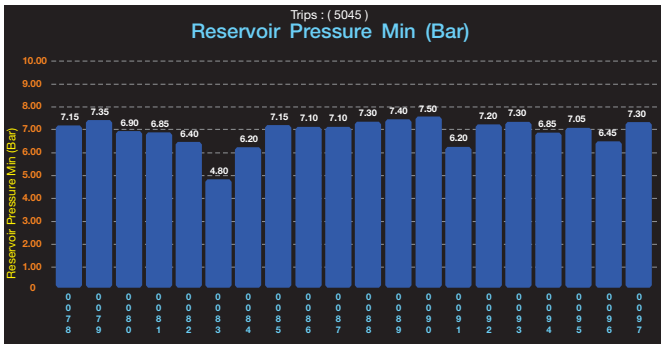


Diagram no. 15: Reservoir Pressure Max (bar)
Displays the maximum air pressure (bar) in the reservoir per trip; in this example, trip 0046 displays a too high reservoir pressure.

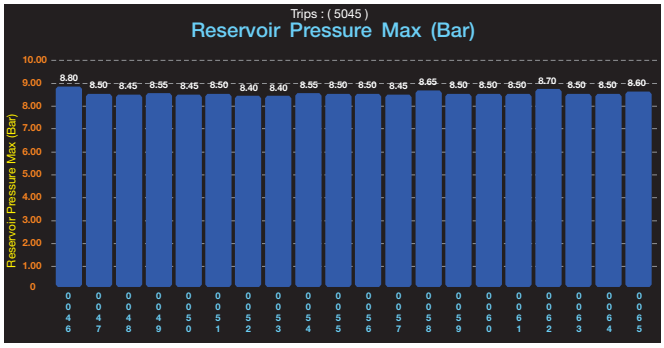


Diagram no. 16: Trip Duration (minutes)
The diagram displays the duration of the trips in minutes. For longer trips a value range is given. E.g. for trip 0062, a trip duration of 110 - 119 minutes has been recorded.

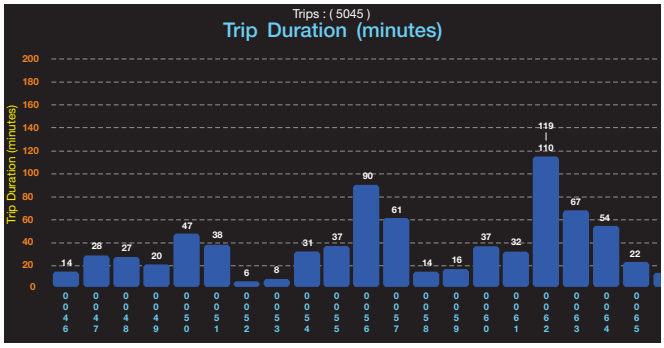


Diagram no. 17: Lift Axle - Number of Operations
Displays the number of operations of the lift axle per trip (ECU Software Version C505 and above). In this example, the lift axle has been lifted once during several trips (e.g. depending on the load after switching on the ignition) whereas, it was not used during other trips (e. g. due to high load).

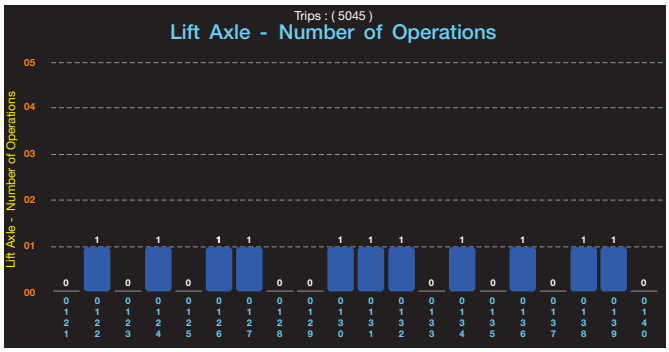
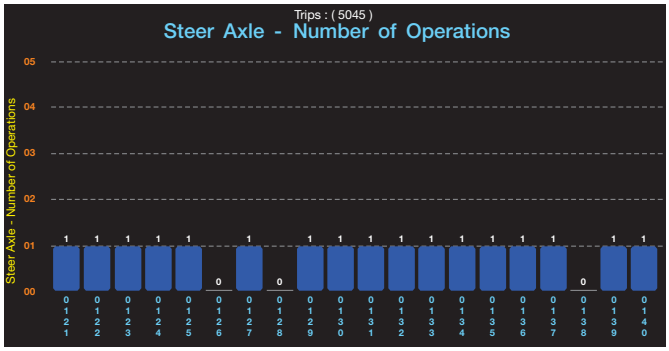


Diagram no. 18: Steer Axle - Number of Operations
Displays the number of operations of the steer axle lock per trip (ECU Software Version C505 and above). In this example the steer axle lock was operated once on most trips (e.g. driving in reverse).



11 Trip Log - Options

Diagram no. 19: Warning Light Ignored (minutes)

This diagram displays the total time during which the red warning light was ignored (from software version C505). When the red warning light is illuminated, this can be for the following reasons:

- Low reservoir pressure (< 4.5 bar)
- Low supply voltage (< 19.0 V)
- Activation of the emergency brake function by the REV or TrCM when the red line (reservoir pressure supply line) tears away
- In exceptional cases with 3M drawbar trailers when the ABS on one axis completely fails.

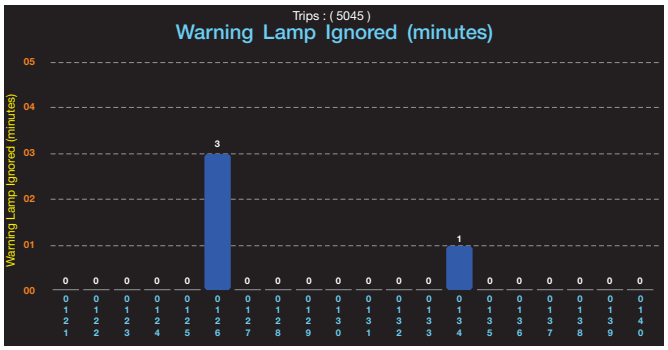


Diagram no. 20: Residual Pressure Time (minutes)

This diagram displays the residual pressure in the brake cylinders when the EBS control pressure is no longer present. This can result from actuating the parking brake.

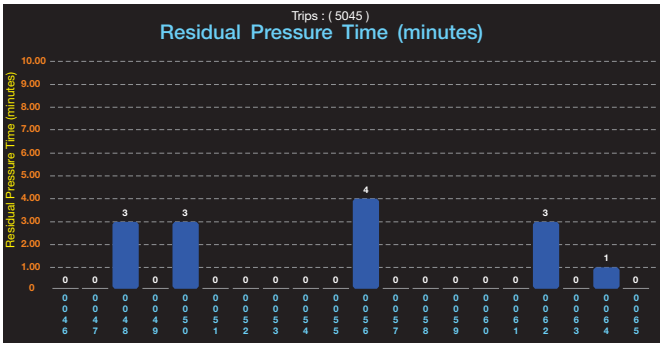


Diagramm Nr. 21: Rough Road Count / km*

This diagram displays the number of rough road counts per trip divided by the number of kilometers travelled per trip. This allows the direct comparison of the number of rough road counts / km for the different trips. For trip 10, for example, a mean value of 5.13 rough road counts / km was registered.

* Road Condition Monitoring algorithm is not implemented in some regional specific versions of BPW ECO Tronic EBS, thus rendering of RCM data within histograms and trip details is not possible.

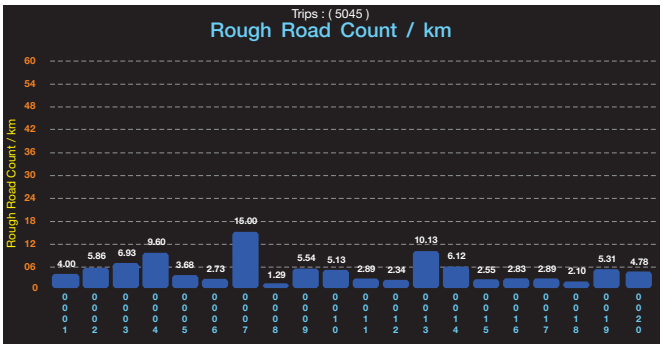


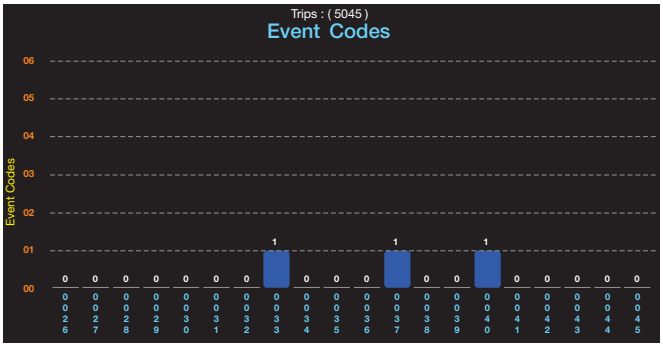
Diagram no. 22: Event Codes

The chart shows the number of different event codes which occurred. Clicking the right mouse button on the bar causes the event code(s) to be shown in the Trip Info Box in the bottom line.

In this case, only one event code (here Overload Snapshot > 105 %) occurred.

The following event codes are possible:

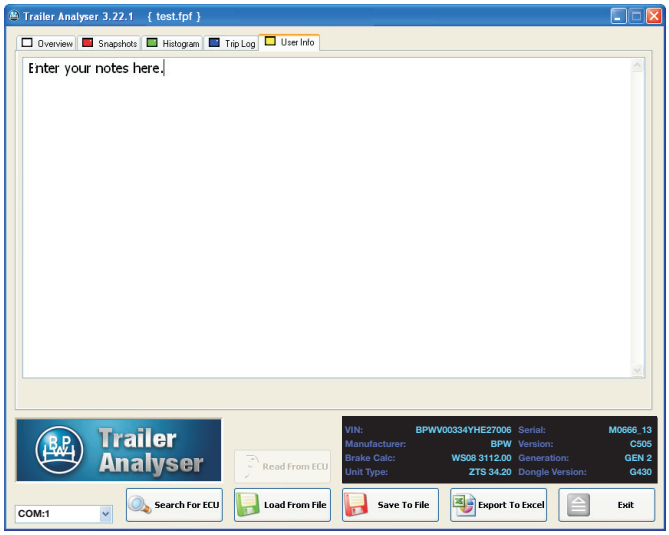
- Over Load Snapshots > 105%
  (this standard threshold value cannot be changed)
- Over Speed Snapshots > 105 km/h
  (this standard threshold value cannot be changed)
- DTC Snapshots
  (occurring during a trip)
- sd_24n_1m
  (soft docking during supply of 24N power)
- Reservoir Snapshots
  (pressure in the reservoir tank)
- B+ Snapshots
  (battery voltage)



12 Main menu - User information

User Information

The yellow „User Info“ tab is the right most tab on the Trailer Analyser screen. Here you can enter your notes and store them with the ECU data in the Trailer Analyser. For example, here you can store data relating to the driver, the vehicle, the freight or other particular information. The maximum number of characters is approximately 30,000 or 80 - 90 KB.



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